AMENDMENTS TO THE CLAIMS

1. (Original) A method for configuring an aircraft for low sonic boom supersonic flight conditions comprising:

scaling an equivalent area distribution curve of the aircraft to approximate an ideal equivalent area distribution goal curve; and

relaxing a design constraint to require the equivalent area distribution curve of the aircraft to be at or below the equivalent area distribution goal curve.

2. (Original) The method according to Claim 1 further comprising:

segmenting a wing of the aircraft into panels;

analyzing the flow characteristics for each panel; and

smoothing the configuration of each panel with adjacent panels along the span and the chord of the wing to smooth the wing surface.

3. (Original) The method according to Claim 1 further comprising:

determining design variables at the root and the tip of a wing of the aircraft along Mach angle lines (X - Beta*R).

4. (Original) The method according to Claim 1 further comprising:

determining an incidence angle for a wing root of the aircraft for maximum lift-to-drag and connection to a fuselage; and

determining the shape of the remaining portions of the wing for maximum lift-to-drag.

5. (Original) The method according to Claim 4 further comprising:

re-determining the incidence angle for the root of a wing of the aircraft and the remaining portion of the wing to meet less than or equal to equivalent area low sonic boom constraints and maximum lift-to-drag.

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6. (Original) The method according to Claim 1 further comprising:

dividing a flight regime of the aircraft into multiple flight modes;

determining an optimum configuration of non-moving components for one of the flight modes; and

determining an optimum configuration of moving components for the other flight modes based on the configuration of non-moving components.

7. (Original) The method according to Claim 1 further comprising:

determining an optimum configuration according to at least one of: lift-to-drag ratio and low sonic boom.

8. (Original) The method according to Claim 3 further comprising:

limiting the length of the excursion of the equivalent area distribution curve below the equivalent area distribution goal curve by dividing the excursion into at least two smaller excursions.

9. (Original) The method according to Claim 1 further comprising:

determining a minimized sonic boom disturbance of an F-function; and

scaling the equivalent area distribution goal curve to maintain the desired aircraft weight while countering excursions below the equivalent area distribution goal curve.

10. (Original) The method according to Claim 3 further comprising:

analyzing the sonic boom disturbance below and to the side of the aircraft; and

perturbing aircraft design variables to meet sonic boom constraints below and to the side of the aircraft.

11. (Original) The method according to Claim 1 further comprising:

adjusting the configuration of a wing on the aircraft to redistribute areas of lift on the wing; and

reshaping a fuselage of the aircraft in combination with the wing to match the equivalent area distribution goal curve.

12. (Original) The method according to Claim 11 further comprising:

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redistributing the areas of lift subject to center-of-pressure constraints to achieve desired balance characteristics for the aircraft.

13-28. (Canceled)

29. (Previously presented) A method for configuring an aircraft for supersonic flight with low shock wave disturbance constraints comprising:

redistributing lift of a wing by configuring the wing with areas of far-field expansion ahead of areas of far-field compression; and

scaling an equivalent area distribution goal curve to maintain the desired aircraft weight while countering excursions below the equivalent area distribution goal curve.

30. (Previously presented) The method according to Claim 29 further comprising:

segmenting the wing into panels;

analyzing the flow characteristics for each panel; and

interpolate the configuration of each panel with adjacent panels to smooth oscillations in the wing surface chordwise, and spanwise along Mach angle lines.

31. (Previously presented) The method according to Claim 29 further comprising:

analyzing perturbations of design variables at the root and the tip of the wing along Mach angle lines.

32. (Previously presented) The method according to Claim 29 further comprising:

analyzing perturbations of design variables along a mid-section portion of the wing.

33. (Previously presented) The method according to Claim 29 further comprising:

determining an incidence angle for the wing for maximum lift-to-drag; and

determining the shape of the remaining portions of the wing for maximum lift-to-drag; and

re-determining the incidence angle and shape of the wing to also meet low sonic boom constraints.

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34. (Previously presented) The method according to Claim 29 further comprising:
redistributing the lift of the wing with center-of-pressure constraints for aircraft balance.

35. (Previously presented) The method according to Claim 29 further comprising:
dividing a flight regime of the aircraft into multiple flight modes;
determining an optimum configuration according to sonic boom constraints at a flight condition; and
determining another optimum configuration to minimize drag at another flight condition subject to sonic boom constraints.

36. (Previously presented) The method according to Claim 29 further comprising:
dividing the areas of far-field expansion and far-field compression into at least two areas of expansion and compression to reduce the magnitude of the sonic boom disturbance.

37. (Previously presented) The method according to Claim 29 further comprising:
determining a desired magnitude of sonic boom disturbance on an F-function; and
scaling the equivalent area distribution goal curve to maintain the desired aircraft weight while countering excursions below the equivalent area distribution goal to achieve the desired magnitude of sonic boom disturbance.

38. (Previously presented) The method according to Claim 29 further comprising:
analyzing the sonic boom disturbance below and to the side of the aircraft; and
configuring the aircraft to meet sonic boom constraints below and to the side of the aircraft.

39. (Previously presented) The method according to Claim 29 further comprising:
allowing the user to define a design variable with limits that allow variation in the incidence angle of the wing where the wing joins the aircraft within a range that allows the wing to be connected to the aircraft.

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